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**What is claimed is;**

1. A processing apparatus having a gas supply mechanism that supplies a processing gas into a processing chamber via a plurality of gas supply holes, an evacuating mechanism that evacuates the processing gas from said processing chamber and a gas circulating mechanism that returns, at least, a portion of exhaust gas evacuated from said processing chamber to said gas supply mechanism, wherein;

*SAC 1  
SAC 2*

said gas supply mechanism is provided with a primary gas supply system that supplies primary gas supplied from a processing gas source into said processing chamber via a plurality of primary gas supply holes and a circulating gas supply system that supplies at least a portion of the exhaust gas into said processing chamber via a plurality of circulating gas supply holes with said primary gas supply system and said circulating gas supply system constituted as systems independent of each other.

2. A processing apparatus according to claim 1, wherein;

the hole radius and the hole density of said gas supply holes are constant over the entire surface; and

the ratio of the number of said primary gas supply holes and said primary number of said circulating gas supply holes is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas.

3. A processing apparatus according to claim 1, wherein;

the hole radius of said gas supply holes is constant over the entire surface;

the ratio of the area over which said primary gas supply holes are provided and the area over which said circulating gas supply holes

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are provided is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas; and

the hole density of said circulating gas supply holes is set so as to ensure that the back-pressure is equal to or lower than the rated back-pressure of said evacuating mechanism when said circulating gas is supplied at the target flow rate.

4. A processing apparatus according to claim 1, wherein;

the hole density of said gas supply holes is constant over the entire surface;

the ratio of the area over which said primary gas supply holes are provided and the area over which said circulating gas supply holes are provided is set equal to the ratio of a target flow rate for said primary gas and a target flow rate for said circulating gas; and

the hole radius of said circulating gas supply holes is set so as to ensure that the back-pressure is equal to or lower than the rated back-pressure of said evacuating mechanism when said circulating gas is supplied at the target flow rate.

5. A processing apparatus according to any of claims 1, wherein;

the ratio of the number of said primary gas supply holes per unit area and the number of said circulating gas supply holes per unit area at said gas supply mechanism is constant over the entire surface of said gas supply mechanism.

6. A processing apparatus according to any of claims 1, wherein;

the conductance of said circulating gas supply system is set higher than the conductance at said gas supply mechanism.

7. A processing apparatus according to any of claims 1, wherein;

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a second primary gas supply system is provided to supply said primary gas through said circulating gas supply holes, with a means for flow rate adjustment for said primary gas provided at said second primary gas supply system.

8. A processing apparatus according to any of claims 1, wherein; a buffer space is provided at said gas circulating mechanism and / or said circulating gas supply system.

9. Processing apparatus according to any of claims 1, wherein; a means for filtering said circulating gas is provided at said gas circulating mechanism and / or said circulating gas supply system.

10. A processing apparatus according to any of claims 1, wherein; the rate at which said primary gas is supplied through said primary gas supply holes into said processing chamber and / or the rate at which said circulating gas is supplied through said circulating gas supply holes into said processing chamber is set equal to or higher than 500 m / sec.

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